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SUBJECT: Reduced Turkish and Iranian Water Flows to Iraq's Tigris and Shatt Al Arab Rivers

REF: Baghdad 2469

Sensitive but Unclassified. Please protect accordingly.

¶1. (SBU) SUMMARY: Daily water flows into three major Iraqi dams (the Mosul, Dokan, and Derbendikahn) indicate significant reductions in waters crossing into Iraq from both Turkey and Iran. Iranian river blockages and diversions contribute to low Tigris River and Shatt Al Arab water flows in Iraq. Low flow conditions in the Tigris and Shatt Al Arab have led to significant backflow of highly saline water from the Arabian Gulf. This backflow has rendered some water treatment plants ineffective, shut down a petrochemical facility and lowered production rates at a refinery, and reduced the quantity and quality of water available for irrigation. Blockage of the Karkh River by Iran appears to have devastated the Iraqi side of the Al Huwaza Marsh, whose waters normally flow into the Tigris. END SUMMARY

Tigris River Contributors and Recent Reductions in Flow

¶2. (SBU) Total river water flow into Iraq has been estimated by various sources at between 65 billion cubic meters (BCM) in dry years to over 85 BCM in wet years. The Tigris River and its tributaries contribute about 60 percent of this total flow (about 50 BCM). Approximately 50 percent of the Tigris River waters enter Iraq from Turkey. Iranian rivers have historically contributed approximately 30 percent of the Tigris river flow. (The remaining waters arise out of the mountains in Kurdistan within Iraq.) While over 40 tributaries originate in the western mountains of Iran before crossing the border to join with the Tigris and the Shatt Al Arab Rivers, there are only four major Iranian tributaries: the Lower Zab River (6.7 BCM) and the Diyala River (5.1 BCM) located in the northeastern corner of Iraq, and the Karkh River (6.4 BCM) and the Karun River (14.4 BCM) located near Basra. The rainfall catchment basins for these four tributaries stretch across both Iraqi and Iranian territory, but the bulk of the river water results from the melting snowcaps of the Zagros mountain range in northwestern Iran. A fifth large tributary to the Tigris River, the Upper Zab River (13.3 BCM), arises out of the mountains of Kurdistan and eastern Turkey.

¶3. (SBU) In the last two years, flows from the major Iranian tributaries to the Tigris and Shatt Al Arab have dramatically decreased. Evidence of the flow decrease in the Lower Zab and Diyala Rivers is shown in daily water data for the Dokan Dam on the Lower Zab River and the Derbendikahn Dam on the Diyala River near the Iranian border. The average inflow rates from Iran into these dams during July-September 2009 have decreased 62 percent and 66 percent, respectively, compared to July-September 2005, and 52 percent and 64 percent, respectively, compared to July-September 2007. (Insufficient data exists to calculate average flow rates in 2006 and 2008). The limited available data indicates that the decreasing inflow rate may have begun in 2008.

¶4. (SBU) Iran appears to have reduced the Karkh and Karun River flows into Iraq by constructing a sand berm (Karkh River) and canals (Karun River) that divert large amounts of water away from the Iraqi border. Recent visual observation and unclassified photographs of a sand berm along the Iran-Iraq border indicate that the Karkh River (6.3 BCM) has been blocked, resulting in water pooling on the

Iranian side of the border and dry land on the Iraqi side of the border. Unclassified aerial photographs show Iranian diversion canals that are drawing water from the Karun River inside Iran. This water then appears to be directed to a canal that flows just to the east of the Iraq-Iran border and south into the Arabian Gulf.

15. (SBU) As measured at Iraq's Mosul Dam, Tigris River average inflows from Turkey have decreased significantly since 2005. In 2005 and 2007, the average water inflow rates of the Tigris into Iraq during July-September were 219 cm/s and 204 cm/s, respectively.

In 2009, the average water inflow rate of the Tigris during July-September had decreased to 153 cm/s. (Insufficient data exists to calculate average flow rates in 2006 and 2008.) The limited available data indicates that the decreasing inflow from Turkey may have begun in 2008.

#### Water Blockages and Diversions Have Significant Downstream Impact

16. (SBU) The decreasing water inflows from Iran and Turkey and a regional drought have caused severe impacts from Kirkuk in the north to Basra in the south. In recent years, the Derbendikahn Dam, fed by the Diyala River, has seen dramatic drops in water level.

Another dam (Dokan Dam) is fed by the Lower Zab River, which is a major source of water for the city of Kirkuk. The Dokan Dam's water level over the last two years is lower than it has been in the previous four years. According to the Foreign Agricultural Service (FAS), careful management of the remaining water in the dam as well as in other parts of Iraq is necessary to ensure adequate soil moisture and surface water availability going into the sowing season for wheat and barley.

17. (SBU) In Basra province, low river water flows from Karkh River blockages and Karun River diversions have allowed the Arabian Gulf to intrude up to 60 kilometers north of the mouth of the Shatt Al Arab. This highly saline water pollutes water treatment plant intakes and irrigation canals and has interfered with at least one

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petrochemical plant. Karkh River blockage has also had a devastating effect on the Iraqi side of the Al Huwaza Marsh. Flow that used to exit the Al Huwaza Marsh from the south side and join the Tigris River is nonexistent, and only patches of small stagnant pools of water can be seen from the air. An area of the Al Huwaza that was described as "Nice Marsh" by USG personnel during aerial reconnaissance last year is today dry land with no water and no vegetation.

18. (SBU) According to the Minister of Water Resources, salinity concentrations in the town of Sibah, located 40 km south of Basra near the mouth of the Karun River, have reached 9 parts per thousand. That contrasts to the World Health Organization standard of no more than 1 part per thousand. For agricultural uses, the standard is no more than 2 parts per thousand. Amer Salman, head of Basra Agriculture Directorate stated in September that "The salinity level has made it impossible to use the water for drinking and irrigation, animals and agriculture. This is a real and serious catastrophe and it will probably affect the down-town area of Basra soon." A Ministry of Water Resources October 2 statement said, "The province of Basra suffers from scarcity of fresh water after the majority of desalination plants stopped due to the high percentage of salt in the water." Recent news reports from Basra indicate that the Petrochemical Plants Compound shut down for several weeks due to high salinity in the Shatt Al Arab. In addition, according to oil refinery officials in Baghdad, the Basra refinery is experiencing reduced production rates due to salt water in its intakes.

#### Efforts to Mitigate Negative Impact

19. (SBU) Humanitarian efforts are ongoing in Basra Province to counteract the effects of diminished and ineffective water treatment capabilities due to the high salinity concentrations.

Non-governmental organizations (NGOs) are contributing water storage tanks in Al Fao and Sibah, and UNICEF and the U.S. military are providing 150,000 and 600,000 liters per day of potable water to the region, respectively. (Comment: The U.S. military contract for the provision of water is scheduled to end on January 1. End Comment) The U.S. military is also refurbishing water treatment plants and supply lines in the area to facilitate increased flow from water sources other than the highly saline Shatt Al Arab.

10. (SBU) The Government of Iraq (GOI) has announced medium- and long-term steps to improve water treatment and supply in Basra province. The GOI has approved funding of a \$20 million pipeline to

transport lower salinity waters from the north of Basra to the southern towns perched along the banks of the Shatt Al Arab. The government has purchased eight desalination units to be installed in Al Fao and Sibah and has preliminarily approved funding for the construction of a dam system on the Shatt al Arab that would eventually impede the backflow of salt waters from the Arabian Gulf.

In addition, according to the Deputy Minister of Municipalities and Public Works, the GOI has published a tender to obtain 325 low capacity (1-5 cm/hr) solar powered desalination units to be distributed to smaller villages in the most affected areas.

¶11. (SBU) Long-term water planning is also being addressed by the GOI. Three firms, British, Italian, and Russian, responded to a tender to develop a 30-year strategic water plan for the country. This plan will provide a realistic estimate of present and future agricultural, industrial, and potable water requirements and expected water availability for the country. As discussed reftel, available water resources must be managed properly in order to maximize beneficial usage of this resource.

Comment: Water Realities

¶12. (SBU) Iraq is in a tenuous position with regards to water. Iraq is surrounded by traditionally dry countries that appear ready to fully utilize the water that travels through their territory. Since Iraq is a downstream riparian state, it must develop an overall water strategy that includes a strong water rights negotiating position, an achievable water management plan, and water treatment facilities that have the ability to desalinate brackish and sea waters.